



HIL/LHD/ENV/MoEF/385

Date: 25.11.2022

To,
The Additional Principal Chief Conservator of Forest (C)
Ministry of Environment, Forests and Climate Changes
Regional Office (ECZ), Ranchi-834002.

Sub: Compliance Report of EC conditions for Serengdag Bauxite Mining (140.07 ha) project of M/s Hindalco Industries Limited located in Dist- Gumla, Jharkhand for the period April'22 to September'22.

Ref: Environmental Clearance letter no J-11015/243/2005-IA II (M) dated 23rd June 2006

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Serengdag (140.07 Ha) Bauxite Mining** project of **M/s Hindalco Industries Limited** located in Gumla, Jharkhand for the period April'22 to September'22. The lease detail is as below.

| Lease area (ha) | Production Capacity (MT) | Lease Period |
|-----------------|--------------------------|--------------------------|
| 140.07 | 100000 | 04.10.1978 to 31.03.2030 |

Hope you will find the same in order.
Thanking You

Yours Sincerely
FOR HINDALCO INDUSTRIES LIMITED

(Basudev Gangopadhyay)
AVP (Planning, Environment & Compliance)

Enclosure: - As Above

CC: ro.ranchi-mef@gov.in, mef@ori.nic.in, mef@nic.in, mef.or@nic.in, mescb.cpcb@nic.in, zokolkatta.cpcb@nic.in, ranchiispcb@gmail.com, roranchi47@gmail.com

Name of the Project : **Srengdag Bauxite Mine (140.07 ha)**
M/s Hindalco Industries Limited

Environment Clearance No. & date : **J-11015/243/2005-IA.II(M), dated 23.06.2006**

Period of compliance Report : **From 1st April 2022 to 30th September 2022**

| S No | Conditions | Compliance Status |
|----------------------------|---|---|
| Specific Conditions | | |
| 1 | All the conditions stipulated by the State Pollution Control Board in their consent to establish should be effectively implemented. | Implementations of the stipulated conditions in consent to establish are fulfilled post which consent to operate has been obtained from time to time. Existing consent to operate is valid upto 31.03.2025. Implementations of the stipulated conditions mentioned in consent to operate are being complied with. |
| 2 | The environmental clearance is subject to approval of the state land use Department, Government of Jharkhand for diversion of agricultural land for non-agricultural use. | Land acquisition is being done with permission of competent authority of State Government i.e. concerned Deputy Commissioner (D.C.) under CNT Act. The land lease agreement is being done with raiyat (Landowner) for 20 years with permission of State Govt with provision of returning the land as per the norms set by D.C. The compensation and facilities are being provided as per norms set in agreement. Thus, land acquisition has the approval of State Government. |
| 3 | Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 62.18 ha forestland shall be obtained before starting mining operation in that area | Mining is never carried out in forest land. Winning of bauxite during above period was not carried out. The forest land has been surrendered by the company. The necessary formality is under process at forest department for same. |
| 4 | Topsoil shall be stacked properly with proper slope with adequate measures and should be used for reclamation and rehabilitation of mined out areas. | Topsoil being spread over the backfilled area adequately for reclamation and rehabilitation of mined out areas as applicable when mine was operational. Winning of bauxite during above period was not carried out. |
| 5 | The waste generated in the initial period shall be dumped temporarily and backfilled in the mined-out area. There shall be no permanent external OB | Waste/OB generated is used in backfilling, data enclosed. |

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|---|---|---|
| | <p>dump in the project area. Concurrent backfilling should start from the fifth year onwards. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests on six monthly basis.</p> | <p>There is no external dump as on date. Concurrent backfilling was under progress.</p> <p>Monitoring and management of rehabilitated areas continuing with regular supervision.</p> |
| 6 | <p>Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil and mineral dump. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted particularly after monsoon and maintained properly.</p> <p>Garland drain (size, gradient and length) shall be constructed for mine pit and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.</p> | <p>No run-off is generated from mining activities. However, to collect & manage rainwater during monsoon, part of mined out area is used as settling tank for the runoff. Rainwater stored is being used for watering the mine area, roads, green belt development and sprinkling as necessary.</p> <p>Catch drains, Garland drains of appropriate size are being constructed in both around the mine pit to prevent runoff of water and flow of sediments directly into the agricultural field and water bodies, if applicable.</p> <p>Sump of adequate capacity is being provided and maintained as required.</p> <p>No external dump in project area as on date.</p> |
| 7 | <p>Plantation shall be raised in an area of 37.1 ha including a green belt of adequate width by planting the native species around the ML area, roads, 06 dump sites etc. in consultation with the local DFO/Agriculture Department. The density of the trees should be around 1500 plants per ha.</p> | <p>Between April'22 to September'22, around 2000 saplings have planted in this mine. Total 4.84 ha areas have been planted till date. In addition to this agricultural activity is going on reclaimed land as per the consent from landowners. Rest to be complied during project period.</p> |
| 8 | <p>The mining operations shall not intersect groundwater table. Prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for mining below water table.</p> | <p>No natural watercourse and/or water resource has been obstructed due to any mining operations.</p> <p>In future also, working zone will be restricted to above ground water table.</p> <p>We undertake that no mining is/was carried out below ground water table and the same status will be maintained in future also.</p> |
| 9 | <p>The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.</p> | <p>As of now, to augment the ground water resources, measures like sump, no use of ground water for mining activities, no discharge of mine water outside mining lease area, systematic backfilling etc. being practiced.</p> <p>It may be noted that there is no chance to intersect ground water table during mining</p> |

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| | | operation. |
| 10 | Regular monitoring of ground water level and quality should be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board. | The mining operation is not intersecting ground water table. We are not using ground water for any mining purpose. Piezometer has been installed for monitoring of ground water level. Water quality and water level report are attached herewith as Annexure 1 . |
| 11 | Prior permission from the competent authority should be obtained for drawl of water from the surface water bodies. | Water is collected from rainwater harvesting pond of Serengdag plateau. We are not using natural water bodies, ground water for mining purposes. There is no chance to intersect ground water table during mining operation as total mining depth is around 20m (maximum) which is much above the ground water table. |
| 12 | The project proponent shall monitor the spring discharge on long term basis (at least one major spring) both in terms of quantity and quality of water and records maintained. Six monthly report should be submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubneshwar. | Spring water is being monitored. Analysis report is attached as Annexure 2 . |
| 13 | Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded. | To keep vehicular emissions in control, company vehicles are periodically checked & repaired. All measures are being taken to control vehicular emission. Winning of bauxite during above period was not carried out. |
| 14 | The higher benches of the excavated void to be converted into water reservoir shall be terraced and afforested to stabilize the slopes. Peripheral fencing shall be done along the excavated area. | This work is in progress with the progress of mining activity. Mined out pit will be converted into water reservoir; plantation will be carried out to stabilize the slopes and get them terraced. |
| 15 | Drills should either be operated with dust extractors or should be equipped with water injection system | Wet drilling is in practice. Winning of bauxite during above period was not carried out. |
| 16 | Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and | Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. |

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| | boulders should be implemented | Efforts and mitigative measures are being taken to mitigate impact of blasting. |
| 17 | Consent to operate should be obtained from SPCB prior to start of production of mine | Existing consent to operate is valid upto 31.03.2025. |
| 18 | Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations. | There is no residential accommodation in the mine area hence STP is not required. Effluent treatment mechanism (Oil-grease trap) are installed at suitable site in Sherengdag plateau. |
| 19 | The project proponent should take all precautionary measures during mining operation for conservation and protection of endangered flora and fauna spotted in the study area. Action plan for conservation of endangered flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. Copy of action plan may be submitted to the Ministry and its Regional Office within 3 months. | <p>Following precautionary measures are being undertaken for conservation of flora and fauna. Suitable conservation measures to protect endangered flora & fauna implemented as under</p> <ol style="list-style-type: none"> 1. Permanent pillars are established within the mine lease area. 2. Maintenance of the forest road being done 3. Ensured necessary air and noise pollution control measures. 4. Regular water sprinkling is being carried out on the forest road 5. Transportation done only in daytime 6. Patrolling is being done. <p>However, Draft WLCP report has already been prepared by EX PCCF in consultation with state forest department. The final report will be submitted soon for its approval.</p> |
| 20 | A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval. | <p>Final mine Closure Plan will be prepared & submitted at appropriate time as per applicable guideline and timelines mentioned in MCDR/IBM guideline who are competent authority to approve the same.</p> <p>Presently we are having approved progressive mine closure Plan. Based on the present resource estimate, and peak rated production capacity mentioned in EC, Mining operation is being carried out.</p> |

GENERAL CONDITIONS

| S No | Conditions | Compliance Status |
|------|---|---|
| 1 | No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests. | Noted. |
| 2 | No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made | Noted. Report is attached as Annexure 4 . |
| 3 | Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RPM, SPM, SO ₂ , NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. | We have already established four ambient air quality-monitoring stations in core zone as well as buffer zone. Monitoring is being carried out and reported to concern authorities. Report is attached as Annexure 2 . |
| 4 | Data on ambient air quality (RPM, SPM, SO ₂ , NO _x) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months. | Monitoring is being done. AAQ monitoring report is attached as Annexure -2 . |
| 5 | Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained. | One mobile water tanker with sprinkling facility has been provided along haul roads, loading unloading & at transfer points to arrest dust emissions. Winning of bauxite during above period was not carried out. |
| 6 | Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs. | Noise monitoring is done regularly. Workers engaged in operation of HEMM, etc. are provided with ear plugs / muffs. Monitoring report is enclosed as Annexure -2 . Winning of bauxite during above period was not carried out. |

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| 7 | Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents. | There is no Industrial wastewater generated from workshop within mine lease area. We are not discharging any wastewater outside mine lease area. Oil and grease has been installed at Shrengdag plateau at suitable site. |
| 8 | Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed. | <p>Complied.</p> <p>Personal Protective Equipment is provided & used by the individuals during the mining activities. We have a well-equipped hospital at mine site where health checkup of workmen is carried out regularly.</p> <p>Training on safety, health & environmental aspects of mining is being regularly imparted through VT training & other training programmes.</p> <p>Winning of bauxite during above period was not carried out.</p> |
| 9 | A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization | Separate management cell is functioning with qualified in-house members. Copy is enclosed as Annexure 3 . |
| 10 | The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work. | Provisions related to financial closure is not applicable as this is an operating mine. Currently, the Regional Office is located at Ranchi |
| 11 | The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar. | Statement of actual expenses for environmental protection measure is attached as Annexure- 5 . Currently, the Regional Office is located at Ranchi |
| 12 | The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work. | Vide sl. No. 10. Currently, the Regional Office is located at Ranchi |
| 13 | The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports. | Agreed. Currently, the Regional Office is located at Ranchi |

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| 14 | A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom and suggestion / representation has been received while processing the proposal. | Complied |
| 15 | State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days. | Displayed. |
| 16 | The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located Bhubneshwar. | Complied. (Documents already submitted) |



Signature

Sherengdag -B Bauxite Mines (140.07 Ha)



Plantation over reclaimed area



Plantation over reclaimed area

Sherengdag -B Bauxite Mines (140.07 Ha)



Washing Ramp and Oil and grease trap



Tarpaulin covered truck



Rainwater Harvesting Pond

Annexure 1**Piezometer reading - Serengdag (140.06 Ha)**

| S No | Month | Depth (meter) |
|-------------|--------------|----------------------|
| 1 | Apr-22 | 36.40 |
| 2 | May-22 | 36.35 |
| 3 | Jun-22 | 36.50 |
| 4 | Jul-22 | 36.80 |
| 5 | Aug-22 | 36.92 |
| 6 | Sep-22 | 36.90 |



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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/09321 | Report Release Date : 12.05.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/10451 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Mine Pit Quarry No 2B Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 15/04/2022 to 16/04/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 32 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 69 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 70 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 40 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.1 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 10.7 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.035 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.5 |

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TEST REPORT

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| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.23 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****

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| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1045J |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Baisbhatan Village Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 15/04/2022 to 16/04/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 32 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 69 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 63 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 32 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 8.6 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 13.4 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.042 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.9 |

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| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.6 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.34 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

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****End of Report****

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PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
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Phone no : 0651-2290103

Website : www.elespl.co.in

TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/0932K | Report Release Date : 12.05.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1045K |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Block 2A (Prohopat Village) Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 15/04/2022 to 16/04/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 32 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 72 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 37 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 7.2 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.0 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.026 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.2 |

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CIN: U74999JH2018PTC011125

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/0932K | Report Release Date : 12.05.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.23 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/0932L | Report Release Date : 12.05.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1045L |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Harup Block C (Proposed) Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 15/04/2022 to 16/04/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 32 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 63 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 29 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 5.5 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.7 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.023 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.2 |

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TEST REPORT

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|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/0932L | Report Release Date : 12.05.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.38 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

****End of Report****

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/0932E | Report Release Date | : 12.05.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1045E |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Banjari Village |
| Plant Status | : Operational | Sampling Date | : 14/04/2022 to 15/04/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 31 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 71 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 64 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 23 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.7 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.027 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 3.1 |

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/0932E | Report Release Date | : 12.05.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.3 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.27 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****

Page 2 of 2

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/0932F | Report Release Date | : 12.05.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1045F |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Pauri Village |
| Plant Status | : Operational | Sampling Date | : 14/04/2022 to 15/04/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 31 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 71 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 66 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 29 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.7 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.019 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.7 |

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ENVIRONMENTAL LABORATORIES &

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/0932F | Report Release Date | : 12.05.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.4 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.41 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/0932G | Report Release Date : 12.05.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1045G |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Harup Village |
| Plant Status | : Operational | Sampling Date | : 14/04/2022 to 15/04/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 31 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 71 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|--------------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 51 |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 27 |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.2 |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.018 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.6 |

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/0932G | Report Release Date : 12.05.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.1 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****



ENVIRONMENTAL LABORATORIES &

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/0932H | Report Release Date | : 12.05.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1045H |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Paintoli Village |
| Plant Status | : Operational | Sampling Date | : 14/04/2022 to 15/04/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 31 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 71 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 57 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 26 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.7 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.017 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.3 |

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/0932H | Report Release Date : 12.05.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.32 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****

Page 2 of 2

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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Shrengdag-B Bauxite Mine-Environmental Monitoring Report

May 2022



CONTENT

| Hindalco Industries : Shrengdag B Bauxite Mine Environmental Monitoring Report | | May2022 |
|--|-----------------------------|---------|
| Shrengdag B Bauxite Mine | | |
| AMBIENT AIR QUALITY- CORE ZONE | | |
| 1 | Mine Pit Quarry No 2B | |
| 2 | Near Baisbhatan Village | |
| 3 | Block 2A (Prohopat Village) | |
| 4 | Harup Block C (Proposed) | |
| AMBIENT AIR QUALITY- BUFFER ZONE | | |
| 1 | Near Banjari Village | |
| 2 | Near Pauri Village | |
| 3 | Near Harup Village | |
| 4 | Near Paintoli Village | |
| AMBIENT NOISE | | |
| WORKZONE/SPOT NOISE | | |
| WORKSHOP EFFLUENT | | |
| DRINKING WATER ANALYSIS | | |





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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/13501 | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1358I |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Mine Pit Quarry No 2B Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 13/05/2022 to 14/05/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 29 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 66 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 32 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 8.6 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 10.4 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.022 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.2 |

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350I | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.6 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.24 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****

Page 2 of 2

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350J | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1358J |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Baisbhatan Village Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 13/05/2022 to 14/05/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 29 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|--------------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 60 |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 27 |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 7.5 |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.8 |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.029 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.4 |

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350J | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.2 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.25 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1350K | Report Release Date : 14.06.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1358K |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Block 2A (Prohopat Village) Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 13/05/2022 to 14/05/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 29 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 63 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 26 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.5 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 10.4 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.027 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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CIN: U74999/JH2018PTC011125

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1350K | Report Release Date : 14.06.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

Authorized Signatory
SANDIP BERA
SENIOR MANAGER
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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350L | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1358L |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Harup Block C (Proposed) Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 13/05/2022 to 14/05/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 29 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|--------------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 69 |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 27 |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 5.8 |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.5 |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.012 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350L | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.24 |

Remarks: (*)-Parameters are outsourced to other Lab.

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350E | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1358E |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Banjari Village |
| Plant Status | : Operational | Sampling Date | : 12/05/2022 to 13/05/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 28 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 70 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 53 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 22 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.5 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.012 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.3 |

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CIN: U74999JH2018PTC011125

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Website : www.elespl.co.in

TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350E | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.22 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****


Authorized Signatory
SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350F | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1358F |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Pauri Village |
| Plant Status | : Operational | Sampling Date | : 12/05/2022 to 13/05/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 28 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 70 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 63 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 23 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 5.9 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.3 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.015 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.5 |

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CIN: U74999JH2018PTC011125

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350F | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.23 |

Remarks: (*)-Parameters are outsourced to other Lab.

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350G | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1358G |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Harup Village |
| Plant Status | : Operational | Sampling Date | : 12/05/2022 to 13/05/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 28 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 70 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 45 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 20 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.0 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.005 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.1 |

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Website : www.elespl.co.in

TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350G | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

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Page 2 of 2

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CIN: U74999JH0018PFC011125

TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1350H | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1358H |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Paintoli Village |
| Plant Status | : Operational | Sampling Date | : 12/05/2022 to 13/05/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 28 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 70 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 55 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 21 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.6 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.018 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

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| Test Report No. | : ELES/RNC/2022/1350H | Report Release Date | : 14.06.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.25 |

Remarks: (*)-Parameters are outsourced to other Lab.

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1355F | Report Release Date : 14.06.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--------------------|
| Customer Name | : Hindalco Industries Limited | Sample Date | : 14.05.2022 |
| Address | : Lohardaga, Jharkhand-835203 | Type of Sample | : Ambient Noise |
| Plant Status | : Operational | Sampling procedure | : ELES/DOC/SMPL/03 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |

| Location | Unit | Test Protocol | Result | | Regulatory Limit (Industrial Zone) |
|--------------------------------------|-------|--------------------------|------------|-----------------|---|
| | | | Time | L _{eq} | |
| Serengdag-B Mines Pit | dB(A) | IS 9989:1981, RA 2020 | Day Time | 72 | 75 dB(A) Day Time & 70 dB(A) Night Time |
| Sample ID: ELES/RNC/2022/AN/1363F | | | Night Time | 59 | |

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TEST REPORT

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|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1356F | Report Release Date : 14.06.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--------------------|
| Customer Name | : Hindalco Industries Limited | Sampling Date | : 14.05.2022 |
| Address | : Lohardaga, Jharkhand-835302 | Type of Sample | : Workzone Noise |
| Plant Status | : Operational | Sampling procedure | : ELES/DOC/SMPL/03 |
| | | Sample Drawn By | : ELES Pvt. Ltd. |

| Location | Unit | Test Protocol | Result | | Regulatory Limit (Industrial Zone) |
|---|-------|--------------------------|----------|----------|---------------------------------------|
| | | | Time | L_{eq} | |
| Near Poclain – Serengdag-B Bauxite Mines | dB(A) | IS 9989:1981, RA 2020 | Day Time | 72 | 75 dB(A) Day Time |
| Sample ID: ELES/RNC/2022/AN/1364F | | | | | |

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1359F | Report Release Date : 14/06/2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/DW/1367F |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Drinking Water Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 14/05/2022 |
| | | Type of Sample | : Drinking Water |
| | | Sampling Procedure | : ELES/DOC/SMPL/01 |
| | | Sample Condition | : Sealed & Preserved |

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|--|-------|-----------------------------------|-----------|---|
| | | | | as per IS:10500:2012 Acceptable Limit |
| pH | - | APHA 23rd Edition 2017,4500-H+-B | 7.3 | 6.5-8.5 |
| Color | Hazen | IS 3025 (Part-04): 1983 | <1.0 | 5 |
| Odour | - | IS 3025 (Part-05): 1983 | Agreeable | Agreeable |
| Taste | - | IS 3025 (Part-07): 1984 | Agreeable | Agreeable |
| Turbidity | NTU | APHA 23rd Edition 2017,2130 B | 0.13 | 1 |
| Free Residual Chlorine | mg/L | IS 3025 (Part-26): 1986 | <0.1 | 0.2 |
| Total Dissolved Solids (TDS) | mg/L | IS 3025 (Part-16):1984 | 142 | 500 |
| Monochloramines | mg/L | APHA 23rd Edition 2017, 4500 Cl-G | <1.0 | 4 |
| Dichloramines | mg/L | APHA 23rd Edition 2017, 4500 Cl-G | <1.0 | 4 |
| Total Hardness (as CaCO ₃) | mg/L | APHA 23rd Edition 2017, 2340 C | 30.2 | 200 |
| Total Alkalinity (as CaCO ₃) | mg/L | IS 3025 (Part-23):1986 | 33.8 | 200 |
| Chloride (as Cl) | mg/L | IS 3025 (Part-32): 1988: RA 2014 | 5.2 | 250 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/1359F Report Release Date : 14/06/2022

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|---|------|--|----------|---|
| | | | | as per IS:10500:2012 Acceptable Limit |
| Sulphate (as SO ₄) | mg/L | IS 3025 (Part-24):1986 | 4.7 | 200 |
| Nitrate (as NO ₃) | mg/L | IS 3025 (Part-34): 1988 | 1.28 | 45 |
| Fluoride (as F) | mg/L | APHA 23rd Edition 2017,4500-F--D | 0.1408 | 1 |
| Ammoniacal Nitrogen (as NH ₃ -N) | mg/L | APHA 23rd Edition 2017, 4500 Norg-C | <0.1 | 0.5 |
| Cyanide (as CN) | mg/L | IS 3025 (Part-27): 1986 | <0.0125 | 0.05 |
| Phenolic Compounds (as C ₆ H ₅ OH) | mg/L | IS 3025 (Part-43): 1992 | <0.00002 | 0.001 |
| Sulphide (as S) | mg/L | IS 3025 (Part-29): 1986 | <0.04 | 0.05 |
| Boron (as B) | mg/L | APHA 23rd Edition, 3125 B | <0.2 | 0.5 |
| Calcium (as Ca) | mg/L | APHA 23rd Edition 2017, 3500 B | 10.2 | 75 |
| Magnesium (as Mg) | mg/L | IS 3025 (Part-46):1994 | 1.3 | 30 |
| Iron (as Fe) | mg/L | APHA 23rd Edition, 3111 B&C | 0.161 | 1 |
| Manganese (as Mn) | mg/L | APHA 23rd Edition, 3111 B&C | <0.05 | 0.1 |
| Aluminum (as Al) | mg/L | APHA 23rd Edition, 3125 B | <0.02 | 0.03 |
| Cadmium (as Cd) | mg/L | APHA 23rd Edition, 3111 B&C | <0.003 | 0.003 |
| Total Chromium (as Cr) | mg/L | APHA 23rd Edition, 3111 B&C | <0.03 | 0.05 |
| Copper (as Cu) | mg/L | APHA 23rd Edition, 3111 B&C | <0.03 | 0.05 |
| Lead (as Pb) | mg/L | APHA 23rd Edition, 3111 B&C | <0.01 | 0.01 |
| Zinc (as Zn) | mg/L | APHA 23rd Edition, 3111 B&C | <0.1 | 5 |

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TEST REPORT

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| Test Report No. : ELES/RNC/2022/1359F | Report Release Date : 14/06/2022 |
|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|---|-----------|-----------------------------|--------------|----------------------|
| | | | | as per IS:10500:2012 |
| | | | | Acceptable Limit |
| Arsenic (as As) | mg/L | APHA 23rd Edition, 3111 B&C | <0.005 | 0.01 |
| Selenium (as Se) | mg/L | APHA 23rd Edition, 3125 B | <0.01 | 0.01 |
| Mercury (as Hg) | mg/L | IS 3025 (Part-48): 2000 | <0.001 | 0.001 |
| Nickel (as Ni) | mg/L | APHA 23rd Edition, 3111 B&C | <0.01 | 0.02 |
| Mineral Oil* | mg/L | IS 3025 (Part-39): 1991 | <0.01 | 0.5 |
| Anionic Detergents (as MBAS)* | mg/L | Annex K of IS 13428:2005 | <0.05 | 0.2 |
| Polynuclear Aromatic Hydrocarbons (PAHs)* | mg/L | SO-IN-MUL-TE-023 | <0.00005 | 0.0001 |
| Polychlorinated Biphenyls (PCBs)* | mg/L | SO-IN-MUL-TE-022 | <0.00005 | 0.0005 |
| Total Coliforms | MPN/100ml | IS 15185:2016 | Not Detected | Should Not Detected |
| Escheria Coli | MPN/100ml | IS 15185:2016 | Not Detected | Should Not Detected |
| Pesticides | | | | |
| Alachlor* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 20 |
| Atrazine* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 2 |
| Aldrin/ Dieldrin* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.03 |
| Alpha HCH* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.01 |
| Beta HCH* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.04 |
| Butachlor* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 125 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/1359F Report Release Date : 14/06/2022

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|---|------|------------------|--------|----------------------|
| | | | | as per IS:10500:2012 |
| | | | | Acceptable Limit |
| Chlorpyriphos* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 30 |
| Delta HCH* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.04 |
| 2,4- Dichlorophenoxyacetic acid* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 30 |
| DDT (o, p and p, p – Isomers of DDT)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 1 |
| Endosulfan (alpha, beta, and sulphate)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.4 |
| Ethion* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 3 |
| Gamma — HCH (Lindane)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 2 |
| Isoproturon* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 9 |
| Malathion* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 190 |
| Methyl parathion* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.3 |
| Monocrotophos* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 1 |
| Phorate* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 2 |
| DDE (o, p and p, p – Isomers of DDE)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 1 |
| DDD (o, p and p, p – Isomers of DDD)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 1 |

Remarks: (*) All the parameters are outsourced to other Lab.

****End of Report****

Authorized Signatory
SANDIP BERA
SENIOR MANAGER

Page 4 of 4

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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Shrengdag-B Bauxite Mine-Environmental Monitoring Report

June 2022



CONTENT

| Hindalco Industries : Shrengdag B Bauxite Mine Environmental Monitoring Report | | June 2022 |
|--|---|-----------|
| Shrengdag B Bauxite Mine | | |
| | AMBIENT AIR QUALITY- CORE ZONE | |
| 1 | Mine Pit Quarry No 2B | |
| 2 | Near Baisbhatan Village | |
| 3 | Block 2A (Prohopat Village) | |
| 4 | Harup Block C (Proposed) | |
| | AMBIENT AIR QUALITY- BUFFER ZONE | |
| 1 | Near Banjari Village | |
| 2 | Near Pauri Village | |
| 3 | Near Harup Village | |
| 4 | Near Paintoli Village | |
| | SPRING WATER | |





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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/16161 | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/17901 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Mine Pit Quarry No 2B Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 07/06/2022 to 08/06/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 27 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 69 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 67 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 34 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 7.8 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 6.3 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.025 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.5 |

Page 1 of 2

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TEST REPORT

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|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1616I | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.3 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.22 |

Remarks: (*)-Parameters are outsourced to other Lab.

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****End of Report****

SANDIP BERA
SENIOR MANAGER
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Page 2 of 2

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TEST REPORT

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|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1616J | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1790J |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Baisbhatan Village Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 07/06/2022 to 08/06/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 27 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 66 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 31 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 8.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.5 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.033 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.4 |

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TEST REPORT

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| Test Report No. : ELES/RNC/2022/1616J | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.3 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.27 |

Remarks: (*)-Parameters are outsourced to other Lab.

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SENIOR MANAGER
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TEST REPORT

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|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1616K | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1790K |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Block 2A (Prohopat Village) Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 07/06/2022 to 08/06/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | |
|----------------------------|--------------------------|------|------------------------------------|
| 1 | Average Temperature (°C) | : 27 | 2 Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 60 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 27 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.5 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.024 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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| Test Report No. : ELES/RNC/2022/1616K | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.23 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

Authorized Signatory

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SENIOR MANAGER
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CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1616L | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1790L |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Harup Block C (Proposed) Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 07/06/2022 to 08/06/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 27 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 56 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 20 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 5.1 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.2 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.011 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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Website : www.elespl.co.in

TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1616L | Report Release Date | : 15.07.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.25 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****


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SENIOR MANAGER
ELES PVT. LTD.

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1616E | Report Release Date | : 15.07.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1790E |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Banjari Village |
| Plant Status | : Operational | Sampling Date | : 06/06/2022 to 07/06/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 27 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 71 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 50 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 18 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.2 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.008 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1616E | Report Release Date | : 15.07.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****


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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1616F | Report Release Date | : 15.07.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1790F |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Pauri Village |
| Plant Status | : Operational | Sampling Date | : 06/06/2022 to 07/06/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 27 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 71 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 52 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 21 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.2 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.006 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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Website : www.elespl.co.in

TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1616F | Report Release Date | : 15.07.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.22 |

Remarks: (*)-Parameters are outsourced to other Lab.

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****End of Report****

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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CIN: U74999JH2012PTC011125

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1616G | Report Release Date | : 15.07.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1790G |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Harup Village |
| Plant Status | : Operational | Sampling Date | : 06/06/2022 to 07/06/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 27 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 71 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|--------------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 43 |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 25 |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.4 |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.007 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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CIN: U74999JH2018PTC031125

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1616G | Report Release Date | : 15.07.2022 |
| Work Order No. | : HIL/LHD/FY22-23/001 | Work Order Date | : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|-------------------|----------------------|------------------|--------|
| Benzene* | µg/m ³ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m ³ | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1616H | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/1790H |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Paintoli Village |
| Plant Status | : Operational | Sampling Date | : 06/06/2022 to 07/06/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 27 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 71 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|--------------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 47 |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 19 |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.2 |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.011 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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CIN: U74999JH2018PTC011125

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Website : www.elespl.co.in

TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1616H | Report Release Date : 15.07.2022 |
| Work Order No. : HIL/LHD/FY22-23/001 | Work Order Date : 01.04.2022 |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.24 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

****End of Report****

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

Page 2 of 2

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1629C | Report Release Date : 15/07/2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/SW/1800C |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Spring Water - Serengdag-B Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 08/06/2022 |
| | | Type of Sample | : Surface Water |
| | | Sampling Procedure | : ELES/DOC/SMPL/01 |
| | | Sample Condition | : Sealed & Preserved |

| Parameter | Unit | Test Protocol | Result | As per CPCB & IS2296:1982 (Class-C) |
|--|-------|----------------------------------|-----------------|-------------------------------------|
| | | | | Tolerance Limit |
| pH | - | APHA 23rd Edition 2017,4500-H+-B | 7.2 | 6.5-8.5 |
| Color | Hazen | IS 3025 (Part-04): 1983 | 2 | 300 |
| Odour | - | IS 3025 (Part-05): 1983 | Unobjectionable | Unobjectionable |
| Turbidity | NTU | APHA 23rd Edition 2017,2130 B | 0.32 | -- |
| Free Residual Chlorine | mg/L | IS 3025 (Part-26): 1986 | <0.1 | -- |
| Total Dissolved Solids (TDS) | mg/L | IS 3025 (Part-16):1984 | 909 | 1500 |
| Total Hardness (as CaCO ₃) | mg/L | APHA 23rd Edition 2017, 2340 C | 267 | -- |
| Total Alkalinity (as CaCO ₃) | mg/L | IS 3025 (Part-23):1986 | 239 | -- |
| Chloride (as Cl) | mg/L | IS 3025 (Part-32): 1988: RA 2014 | 30.6 | 600 |
| Sulphate (as SO ₄) | mg/L | IS 3025 (Part-24):1986 | 47.1 | 400 |
| Fluoride (as F) | mg/L | APHA 23rd Edition 2017,4500-F-D | 0.1133 | 1.5 |
| Cyanide (as CN) | mg/L | IS 3025 (Part-27): 1986 | <0.0125 | 0.05 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/1629C Report Release Date : 15/07/2022

| Parameter | Unit | Test Protocol | Result | As per CPCB & IS2296:1982 (Class-C) |
|------------------------|------|--------------------------------|--------|-------------------------------------|
| | | | | Tolerance Limit |
| Boron (as B) | mg/L | APHA 23rd Edition, 3125 B | <0.2 | -- |
| Calcium (as Ca) | mg/L | APHA 23rd Edition 2017, 3500 B | 72.5 | -- |
| Magnesium (as Mg) | mg/L | IS 3025 (Part-46):1994 | 20.9 | -- |
| Iron (as Fe) | mg/L | APHA 23rd Edition, 3111 B&C | 0.551 | 50 |
| Manganese (as Mn) | mg/L | APHA 23rd Edition, 3111 B&C | <0.05 | -- |
| Cadmium (as Cd) | mg/L | APHA 23rd Edition, 3111 B&C | <0.003 | 0.01 |
| Total Chromium (as Cr) | mg/L | APHA 23rd Edition, 3111 B&C | <0.03 | 0.05 |
| Copper (as Cu) | mg/L | APHA 23rd Edition, 3111 B&C | <0.03 | 1.5 |
| Lead (as Pb) | mg/L | APHA 23rd Edition, 3111 B&C | <0.01 | 0.1 |
| Zinc (as Zn) | mg/L | APHA 23rd Edition, 3111 B&C | 0.228 | 15 |
| Arsenic (as As) | mg/L | APHA 23rd Edition, 3111 B&C | <0.005 | 0.2 |
| Selenium (as Se) | mg/L | APHA 23rd Edition, 3125 B | <0.01 | 0.05 |
| Mercury (as Hg) | mg/L | IS 3025 (Part-48): 2000 | <0.001 | -- |
| Dissolved Oxygen (DO) | mg/L | IS 3025 (Part-38) : 2014 | 7.6 | 4.0 (Minimum) |

****End of Report****

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Shrengdag-B Bauxite Mine-Environmental Monitoring Report

July 2022



CONTENT

| Hindalco Industries : Shrengdag B Bauxite Mine Environmental Monitoring Report | | July 2022 |
|--|-----------------------------|-----------|
| Shrengdag B Bauxite Mine | | |
| AMBIENT AIR QUALITY- CORE ZONE | | |
| 1 | Mine Pit Quarry No 2B | |
| 2 | Near Baisbhatan Village | |
| 3 | Block 2A (Prohopat Village) | |
| 4 | Harup Block C (Proposed) | |
| AMBIENT AIR QUALITY- BUFFER ZONE | | |
| 1 | Near Banjari Village | |
| 2 | Near Pauri Village | |
| 3 | Near Harup Village | |
| 4 | Near Paintoli Village | |





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Website : www.elespl.co.in

TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/17681 | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/52001 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 19/07/2022 to 20/07/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 66 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 60 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 24 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.9 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.6 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.019 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.6 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/17681 Report Release Date : 18.08.2022

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.1 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.29 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

****End of Report****

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1768J | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/5200J |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 19/07/2022 to 20/07/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 26 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 66 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 53 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 20 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.7 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 12.1 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.022 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.9 |

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1768J | Report Release Date | : 18.08.2022 |
|-----------------|-----------------------|---------------------|--------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

Authorized Signatory
Dr. Deendra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1768K | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/5200K |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 19/07/2022 to 20/07/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 66 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 57 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 24 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.8 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.8 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.016 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.3 |

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1768K | Report Release Date | : 18.08.2022 |
|-----------------|-----------------------|---------------------|--------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

Authorized Signatory
Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

Page 2 of 2

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1768L | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/5200L |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 19/07/2022 to 20/07/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 26 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 66 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 53 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 15 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.8 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.006 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768L Report Release Date : 18.08.2022

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

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****End of Report****

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1768E | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/5200E |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Banjari Village |
| Plant Status | : Operational | Sampling Date | : 18/07/2022 to 19/07/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 48 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 17 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.1 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.006 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1768E | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1768F | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/5200F |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Pauri Village |
| Plant Status | : Operational | Sampling Date | : 18/07/2022 to 19/07/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 44 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 16 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 6.6 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.004 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/1768F Report Release Date : 18.08.2022

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****


Authorized Signatory
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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1768G | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/5200G |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Harup Village |
| Plant Status | : Operational | Sampling Date | : 18/07/2022 to 19/07/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 38 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 14 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 6.2 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.004 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1768G | Report Release Date | : 18.08.2022 |
|-----------------|-----------------------|---------------------|--------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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Page 2 of 2

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1768H | Report Release Date : 18.08.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/5200H |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Paintoli Village |
| Plant Status | : Operational | Sampling Date | : 18/07/2022 to 19/07/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 26 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 69 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 46 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 22 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.6 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.007 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1768H | Report Release Date | : 18.08.2022 |
|-----------------|-----------------------|---------------------|--------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

****End of Report****

Page 2 of 2

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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Shrengdag-B (140.07ha) Bauxite Mine-Environmental Monitoring Report

August 2022



CONTENT

| Hindalco Industries : Shrengdag B (140.07ha) Bauxite Mine August 2022 | | Environmental Monitoring Report |
|--|-----------------------------|---------------------------------|
| Shrengdag B(140.07ha) Bauxite Mine | | |
| AMBIENT AIR QUALITY- CORE ZONE | | |
| 1 | Mine Pit Quarry No 2B | |
| 2 | Near Baisbhatan Village | |
| 3 | Block 2A (Prohopat Village) | |
| 4 | Harup Block C (Proposed) | |
| AMBIENT AIR QUALITY- BUFFER ZONE | | |
| 1 | Near Banjari Village | |
| 2 | Near Pauri Village | |
| 3 | Near Harup Village | |
| 4 | Near Paintoli Village | |





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Website : www.elespl.co.in

CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888I | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3005I |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 12/08/2022 to 13/08/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 24 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 68 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 57 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 29 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 7.2 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 12.4 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.017 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 3.1 |

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CIN: U74999JH2018PTC011125

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TEST REPORT

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|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888I | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.24 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

****End of Report****

Page 2 of 2

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888J | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3005J |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 12/08/2022 to 13/08/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 24 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 68 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 50 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 21 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 7.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 10.2 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.018 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.4 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888J Report Release Date : 16.09.2022

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.1 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.23 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

Dr. Deependra Kumar Sinha
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ELES Pvt. Ltd. Technical Manager

****End of Report****

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CIN: U74999JH2018PTC011125

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888K | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3005K |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 12/08/2022 to 13/08/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 24 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 68 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|--------------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 49 |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 16 |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 10.1 |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.008 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.1 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888K Report Release Date : 16.09.2022

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888L | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3005L |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 12/08/2022 to 13/08/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 24 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 68 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 46 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 17 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.6 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.004 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

Dr. Deependra Kumar Sinha
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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

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|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1888E | Report Release Date | : 16.09.2022 |
|-----------------|-----------------------|---------------------|--------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3005E |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Banjari Village |
| Plant Status | : Operational | Sampling Date | : 11/08/2022 to 12/08/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 24 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 68 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 40 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 14 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.7 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.003 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888E | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

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ELES Pvt. Ltd. Technical Manager

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TEST REPORT

| | | | |
|-----------------|-----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1888F | Report Release Date | : 16.09.2022 |
|-----------------|-----------------------|---------------------|--------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3005F |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Pauri Village |
| Plant Status | : Operational | Sampling Date | : 11/08/2022 to 12/08/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | |
|----------------------------|--------------------------|------|------------------------------------|
| 1 | Average Temperature (°C) | : 24 | 2 Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) | : 68 | 4 Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 47 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 16 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.4 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.005 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/1888F

Report Release Date : 16.09.2022

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

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ELES Pvt. Ltd. Technical Manager

****End of Report****

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888G | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3005G |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Harup Village |
| Plant Status | : Operational | Sampling Date | : 11/08/2022 to 12/08/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 24 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 68 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 41 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 18 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.8 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | <0.002 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888G | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

****End of Report****

Page 2 of 2

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Website : www.elespl.co.in

TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1888H | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|----------------------------|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3005H |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Paintoli Village |
| Plant Status | : Operational | Sampling Date | : 11/08/2022 to 12/08/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|------|---|----------------------------|---------|
| 1 | Average Temperature (°C) | : 24 | 2 | Barometric Pressure (mmHg) | : 741 |
| 3 | Relative Humidity (%) | : 68 | 4 | Weather Condition | : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 39 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 18 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 5.2 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.4 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.003 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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CIN: U74999/JH2018PTC011125

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TEST REPORT

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| Test Report No. : ELES/RNC/2022/1888H | Report Release Date : 16.09.2022 |
|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

Dr. Deependra Kumar Sinha
Ph. D. Environmental Engg.
ELES Pvt. Ltd. Technical Manager

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Plot No.30, Mansarovar Enclave, Tupudana,Hatia,Ranchi-834003,
Jharkhand.

Shrengdag-B Bauxite Mine-Environmental Monitoring Report

September 2022



CONTENT

| Hindalco Industries : Shrengdag B Bauxite Mine September 2022 | | Environmental Monitoring Report |
|--|-----------------------------|---------------------------------|
| Shrengdag B Bauxite Mine | | |
| AMBIENT AIR QUALITY- CORE ZONE | | |
| 1 | Mine Pit Quarry No 2B | |
| 2 | Near Baisbhatan Village | |
| 3 | Block 2A (Prohopat Village) | |
| 4 | Harup Block C (Proposed) | |
| AMBIENT AIR QUALITY- BUFFER ZONE | | |
| 1 | Near Banjari Village | |
| 2 | Near Pauri Village | |
| 3 | Near Harup Village | |
| 4 | Near Paintoli Village | |
| DRINKING WATER ANALYSIS | | |





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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2280 | Report Release Date : 11.11.2022 |
|--------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3285 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Mine Pit Quarry No 2B Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 20/09/2022 to 21/09/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 24 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 66 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 54 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 23 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.5 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 12.8 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.014 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.8 |



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TEST REPORT

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|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2280 | Report Release Date : 11.11.2022 |
|--------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | 2.3 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | 0.34 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory
SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2281 | Report Release Date : 11.11.2022 |
|--------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3286 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Near Baisbhatan Village Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 20/09/2022 to 21/09/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 24 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 66 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 46 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 17 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.3 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.6 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.012 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.3 |

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TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/2281 | Report Release Date | : 11.11.2022 |
|-----------------|----------------------|---------------------|--------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory
SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2282 | Report Release Date : 11.11.2022 |
|--------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3287 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Block 2A (Prohopat Village) Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 20/09/2022 to 21/09/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 24 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 66 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 46 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 17 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.5 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.006 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/2282

Report Release Date : 11.11.2022

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

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HATIA, RANCHI-834003 (JHARKHAND)
GST NO:- 20AAECE9713D124

ENGINEERING SERVICES PVT. LTD.

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Phone no : 0651-2290103

Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2283 | Report Release Date : 11.11.2022 |
|--------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3288 |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Harup Block C (Proposed) Serengdag-B Bauxite Mines (140.07ha) |
| Plant Status | : Operational | Sampling Date | : 20/09/2022 to 21/09/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | |
|---|-------------------------------|---|----------------------------------|
| 1 | Average Temperature (°C) : 24 | 2 | Barometric Pressure (mmHg) : 741 |
| 3 | Relative Humidity (%) : 66 | 4 | Weather Condition : Clear |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|--------------------------------------|-------------------|---------------------------------|------------------|--------|
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 40 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 12 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 8.0 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |
| Lead (Pb) | µg/m ³ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.004 |
| Nickel (Ni) | ng/m ³ | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m ³ | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

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TEST REPORT

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|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2283 | Report Release Date : 11.11.2022 |
|--------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-------------------|--------------------------|----------------------|------------------|--------|
| Benzene* | $\mu\text{g}/\text{m}^3$ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo (a) Pyrene* | ng/m^3 | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

Authorized Signatory

SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****

Page 2 of 2

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CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2353E | Report Release Date : 11.11.2022 |
|---------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/DW/3357E |
| Address | : Lohardaga, Jharkhand-835302 | Location | : Drinking Water - Serengdag-B Bauxite Mines (140.07 ha) |
| Plant Status | : Operational | Sampling Date | : 21/09/2022 |
| | | Type of Sample | : Drinking Water |
| | | Sampling Procedure | : ELES/DOC/SMPL/01 |
| | | Sample Condition | : Sealed & Preserved |

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|--|-------|-----------------------------------|-----------|----------------------|
| | | | | as per IS:10500:2012 |
| | | | | Acceptable Limit |
| pH | - | APHA 23rd Edition 2017,4500-H+-B | 7.4 | 6.5-8.5 |
| Color | Hazen | IS 3025 (Part-04): 1983 | <1.0 | 5 |
| Odour | - | IS 3025 (Part-05): 1983 | Agreeable | Agreeable |
| Taste | - | IS 3025 (Part-07): 1984 | Agreeable | Agreeable |
| Turbidity | NTU | APHA 23rd Edition 2017,2130 B | 0.21 | 1 |
| Free Residual Chlorine | mg/L | IS 3025 (Part-26): 1986 | <0.1 | 0.2 |
| Total Dissolved Solids (TDS) | mg/L | IS 3025 (Part-16):1984 | 211 | 500 |
| Monochloramines | mg/L | APHA 23rd Edition 2017, 4500 Cl-G | <1.0 | 4 |
| Dichloramines | mg/L | APHA 23rd Edition 2017, 4500 Cl-G | <1.0 | 4 |
| Total Hardness (as CaCO ₃) | mg/L | APHA 23rd Edition 2017, 2340 C | 38.8 | 200 |
| Total Alkalinity (as CaCO ₃) | mg/L | IS 3025 (Part-23):1986 | 40.2 | 200 |
| Chloride (as Cl) | mg/L | IS 3025 (Part-32): 1988: RA 2014 | 8.5 | 250 |

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TEST REPORT

Test Report No. : ELES/RNC/2022/2353E

Report Release Date : 11.11.2022

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|---|------|--|----------|---|
| | | | | as per IS:10500:2012 Acceptable Limit |
| Sulphate (as SO ₄) | mg/L | IS 3025 (Part-24):1986 | 7.3 | 200 |
| Nitrate (as NO ₃) | mg/L | IS 3025 (Part-34): 1988 | 2.12 | 45 |
| Fluoride (as F) | mg/L | APHA 23rd Edition 2017,4500-F--D | 0.1385 | 1 |
| Ammoniacal Nitrogen (as NH ₃ -N) | mg/L | APHA 23rd Edition 2017, 4500 Norg-C | <0.1 | 0.5 |
| Cyanide (as CN) | mg/L | IS 3025 (Part-27): 1986 | <0.0125 | 0.05 |
| Phenolic Compounds (as C ₆ H ₅ OH) | mg/L | IS 3025 (Part-43): 1992 | <0.00002 | 0.001 |
| Sulphide (as S) | mg/L | IS 3025 (Part-29): 1986 | <0.04 | 0.05 |
| Boron (as B) | mg/L | APHA 23rd Edition, 3125 B | <0.2 | 0.5 |
| Calcium (as Ca) | mg/L | APHA 23rd Edition 2017, 3500 B | 10.8 | 75 |
| Magnesium (as Mg) | mg/L | IS 3025 (Part-46):1994 | 2.9 | 30 |
| Iron (as Fe) | mg/L | APHA 23rd Edition, 3111 B&C | 0.188 | 1 |
| Manganese (as Mn) | mg/L | APHA 23rd Edition, 3111 B&C | <0.05 | 0.1 |
| Aluminum (as Al) | mg/L | APHA 23rd Edition, 3125 B | <0.02 | 0.03 |
| Cadmium (as Cd) | mg/L | APHA 23rd Edition, 3111 B&C | <0.003 | 0.003 |
| Total Chromium (as Cr) | mg/L | APHA 23rd Edition, 3111 B&C | <0.03 | 0.05 |
| Copper (as Cu) | mg/L | APHA 23rd Edition, 3111 B&C | <0.03 | 0.05 |
| Lead (as Pb) | mg/L | APHA 23rd Edition, 3111 B&C | <0.01 | 0.01 |
| Zinc (as Zn) | mg/L | APHA 23rd Edition, 3111 B&C | <0.1 | 5 |

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2353E | Report Release Date : 11.11.2022 |
|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Result | Regulatory Limit |
|---|-----------|-----------------------------|--------------|----------------------|
| | | | | as per IS:10500:2012 |
| | | | | Acceptable Limit |
| Arsenic (as As) | mg/L | APHA 23rd Edition, 3111 B&C | <0.005 | 0.01 |
| Selenium (as Se) | mg/L | APHA 23rd Edition, 3125 B | <0.01 | 0.01 |
| Mercury (as Hg) | mg/L | IS 3025 (Part-48): 2000 | <0.001 | 0.001 |
| Nickel (as Ni) | mg/L | APHA 23rd Edition, 3111 B&C | <0.01 | 0.02 |
| Mineral Oil* | mg/L | IS 3025 (Part-39): 1991 | <0.01 | 0.5 |
| Anionic Detergents (as MBAS)* | mg/L | Annex K of IS 13428:2005 | <0.05 | 0.2 |
| Polynuclear Aromatic Hydrocarbons (PAHs)* | mg/L | SO-IN-MUL-TE-023 | <0.00005 | 0.0001 |
| Polychlorinated Biphenyls (PCBs)* | mg/L | SO-IN-MUL-TE-022 | <0.00005 | 0.0005 |
| Total Coliforms | MPN/100ml | IS 15185:2016 | Not Detected | Should Not Detected |
| Escheria Coli | MPN/100ml | IS 15185:2016 | Not Detected | Should Not Detected |
| Pesticides | | | | |
| Alachlor* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 20 |
| Atrazine* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 2 |
| Aldrin/ Dieldrin* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.03 |
| Alpha HCH* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.01 |
| Beta HCH* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.04 |
| Butachlor* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 125 |

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TEST REPORT

| | |
|---------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/2353E | Report Release Date : 11.11.2022 |
|---------------------------------------|----------------------------------|

| Parameter | Unit | Test Protocol | Result | Regulatory Limit as per IS:10500:2012 |
|--|------|------------------|--------|---|
| | | | | Acceptable Limit |
| Chlorpyrifos* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 30 |
| Delta HCH* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.04 |
| 2,4- Dichlorophenoxyacetic acid* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 30 |
| DDT (o, p and p, p – Isomers of DDT)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 1 |
| Endosulfan (alpha, beta, and sulphate)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.4 |
| Ethion* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 3 |
| Gamma — HCH (Lindane)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 2 |
| Isoproturon* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 9 |
| Malathion* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 190 |
| Methyl parathion* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 0.3 |
| Monocrotophos* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 1 |
| Phorate* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 2 |
| DDE (o, p and p, p – Isomers of DDE)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 1 |
| DDD (o, p and p, p – Isomers of DDD)* | µg/L | SO-IN-MUL-TE-020 | <0.01 | 1 |

Remarks: (*) All the parameters are outsourced to other Lab.

Authorized Signatory
SANDIP BERA
SENIOR MANAGER
ELES PVT. LTD.

****End of Report****

Page 4 of 4

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CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1994 | Report Release Date : 06.10.2022 |
| ULR No. : TC883922000001092F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3219 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Banjari Village Serengdag-A Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 26/09/2022 to 27/09/2022 |
| Period of Analysis | : 01/10/2022 to 06/10/2022 | Registration Date | : 01/10/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | |
|----------------------------|--------------------------|--------|------------------------------------|
| 1 | Average Temperature (°C) | : 26.7 | 2 Barometric Pressure (mmHg) : 742 |
| 3 | Relative Humidity (%) | : 67 | 4 Weather Condition : Cloudy |

| Discipline | : Chemical | Group | : Atmospheric Pollution | |
|--------------------------------------|-------------------|---------------------------------|-------------------------|--------|
| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 41 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 24 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.5 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |

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CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1994 | Report Release Date : 06.10.2022 |
| ULR No. : TC883922000001092F | |

| Discipline | : Chemical | Group | : Atmospheric Pollution | |
|--------------|--------------------------|-------------------------|-------------------------|--------|
| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.003 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

****End of Report****

Rekha Saxena
Authorized Signatory

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Director
ELES Pvt. Ltd.

Page 2 of 2

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ENVIRONMENTAL LABORATORIES &

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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1994 | Report Release Date : 06.10.2022 |
|--------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3219 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Banjari Village Serengdag-A Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 26/09/2022 to 27/09/2022 |
| Period of Analysis | : 01/10/2022 to 06/10/2022 | Registration Date | : 01/10/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 26.7 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Cloudy |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-----------------|-------------------|----------------------|------------------|--------|
| Benzene* | µg/m ³ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo(a)Pyrene* | ng/m ³ | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

Rekha Saxena
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Rekha Saxena
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Director
ELES Pvt. Ltd.

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CIN: U74999JH2018PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1995 | Report Release Date | : 06.10.2022 |
| ULR No. | : TC883922000001093F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3220 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Pauri Village Serengdag-A Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 26/09/2022 to 27/09/2022 |
| Period of Analysis | : 01/10/2022 to 06/10/2022 | Registration Date | : 01/10/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 26.7 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Cloudy |

| Discipline | : Chemical | Group | : Atmospheric Pollution | |
|--------------------------------------|--------------------------|---------------------------------|-------------------------|--------|
| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
| Particulate Matter (PM10) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 44 |
| Particulate Matter (PM2.5) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 20 |
| Sulphur Di-Oxide (SO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | 6.1 |
| Nitrogen Di-Oxide (NO ₂) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 9.0 |
| Ozone (O ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m^3 | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |

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CIN: U74999JM2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1995 | Report Release Date : 06.10.2022 |
| ULR No. : TC883922000001093F | |

| Discipline | : Chemical | Group | : Atmospheric Pollution | |
|--------------|--------------------------|-------------------------|-------------------------|--------|
| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.004 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | 2.2 |

****End of Report****

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Page 2 of 2

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TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1995 | Report Release Date : 06.10.2022 |
|--------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3220 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Pauri Village Serengdag-A Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 26/09/2022 to 27/09/2022 |
| Period of Analysis | : 01/10/2022 to 06/10/2022 | Registration Date | : 01/10/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 26.7 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Cloudy |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-----------------|-------------------|----------------------|------------------|--------|
| Benzene* | µg/m ³ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo(a)Pyrene* | ng/m ³ | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

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CIN: U74999JH2018PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1996 | Report Release Date | : 06.10.2022 |
| ULR No. | : TC883922000001094F | | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3221 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Harup Village Serengdag-A Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 26/09/2022 to 27/09/2022 |
| Period of Analysis | : 01/10/2022 to 06/10/2022 | Registration Date | : 01/10/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 26.7 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Cloudy |

| Discipline | : Chemical | Group | : Atmospheric Pollution | |
|--------------------------------------|-------------------|---------------------------------|-------------------------|--------|
| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 36 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 17 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.2 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |

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CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1996 | Report Release Date : 06.10.2022 |
| ULR No. : TC883922000001094F | |

| Discipline | : Chemical | Group | : Atmospheric Pollution | |
|--------------|--------------------------|-------------------------|-------------------------|--------|
| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.002 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

****End of Report****

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Page 2 of 2

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TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1996 | Report Release Date | : 06.10.2022 |
|-----------------|----------------------|---------------------|--------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------|---|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3221 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Harup Village Serengdag-A Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 26/09/2022 to 27/09/2022 |
| Period of Analysis | : 01/10/2022 to 06/10/2022 | Registration Date | : 01/10/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 26.7 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Cloudy |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-----------------|-------------------|----------------------|------------------|--------|
| Benzene* | µg/m ³ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo(a)Pyrene* | ng/m ³ | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

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CIN: U74999JH2018PTC011125

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1997 | Report Release Date : 06.10.2022 |
| ULR No. : TC883922000001095F | |

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3222 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Paintoli Village Serengdag-A Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 26/09/2022 to 27/09/2022 |
| Period of Analysis | : 01/10/2022 to 06/10/2022 | Registration Date | : 01/10/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

METEOROLOGICAL INFORMATION

| | | | | | |
|---|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 26.7 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Cloudy |

| Discipline | : Chemical | Group | : Atmospheric Pollution | |
|--------------------------------------|-------------------|---------------------------------|-------------------------|--------|
| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
| Particulate Matter (PM10) | µg/m ³ | IS 5182 (Part-23): 2006; RA2017 | 100 (24hrs) | 39 |
| Particulate Matter (PM2.5) | µg/m ³ | IS 5182 (Part- 24): 2019 | 60 (24hrs) | 23 |
| Sulphur Di-Oxide (SO ₂) | µg/m ³ | IS 5182 (Part-2): 2001; RA2017 | 80 (24hrs) | <5.0 |
| Nitrogen Di-Oxide (NO ₂) | µg/m ³ | IS 5182 (Part-6): 2001; RA2017 | 80 (24hrs) | 7.0 |
| Ozone (O ₃) | µg/m ³ | IS 5182 (Part-9): 1974; RA2014 | 100 (8hrs) | <20.0 |
| Ammonia (NH ₃) | µg/m ³ | IS 5182 (Part- 25): 2018 | 400 (24hrs) | <10.0 |
| Carbon Monoxide (CO) | mg/m ³ | IS 5182 (Part-10): 1999; RA2019 | 2 (8hrs) | <1.0 |

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CIN: U74999JH2018PTC011125

TEST REPORT

| | | | |
|-----------------|----------------------|---------------------|--------------|
| Test Report No. | : ELES/RNC/2022/1997 | Report Release Date | : 06.10.2022 |
| ULR No. | : TC883922000001095F | | |

| Discipline | : Chemical | Group | : Atmospheric Pollution | |
|--------------|--------------------------|-------------------------|-------------------------|--------|
| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
| Lead (Pb) | $\mu\text{g}/\text{m}^3$ | IS 5182 (Part-22): 2004 | 1 (24hrs) | 0.005 |
| Nickel (Ni) | ng/m^3 | IS 5182(Part-26):2020 | 20 (Annual) | <6.0 |
| Arsenic (As) | ng/m^3 | ELES/AIR/SOP/01:2021 | 6 (Annual) | <2.0 |

****End of Report****

Rekha Saxena
Authorized Signatory
Rekha Saxena
B. Sc, M. Sc. (Botany)
Director
ELES Pvt. Ltd.

Page 2 of 2

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"Saving Environment will only save the Future"



ENVIRONMENTAL LABORATORIES &

PLOT NO-30, MANSAROVAR ENCLAVE, TUPUDANA
HATIA, RANCHI-834003 (JHARKHAND)
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Website : www.elespl.co.in

TEST REPORT

| | |
|--------------------------------------|----------------------------------|
| Test Report No. : ELES/RNC/2022/1997 | Report Release Date : 06.10.2022 |
|--------------------------------------|----------------------------------|

| CUSTOMER DETAILS | | SAMPLE DETAILS | |
|--------------------|-------------------------------|--------------------|--|
| Customer Name | : Hindalco Industries Limited | Sample Ref. No. | : ELES/RNC/2022/AA/3222 |
| Address | : Lohardaga, Jharkhand-835203 | Location | : Near Paintoli Village Serengdag-A Bauxite Mines |
| Plant Status | : Operational | Sampling Date | : 26/09/2022 to 27/09/2022 |
| Period of Analysis | : 01/10/2022 to 06/10/2022 | Registration Date | : 01/10/2022 |
| | | Type of Sample | : Ambient Air |
| | | Sampling Procedure | : ELES/DOC/SMPL/02 |
| | | Sample Condition | : Sealed & Preserved |

| METEOROLOGICAL INFORMATION | | | | | |
|----------------------------|--------------------------|--------|---|----------------------------|----------|
| 1 | Average Temperature (°C) | : 26.7 | 2 | Barometric Pressure (mmHg) | : 742 |
| 3 | Relative Humidity (%) | : 67 | 4 | Weather Condition | : Cloudy |

| Parameter | Unit | Test Protocol | Regulatory Limit | Result |
|-----------------|-------------------|----------------------|------------------|--------|
| Benzene* | µg/m ³ | ASTM D3687:2007 | 05(Annual) | <2.0 |
| Benzo(a)Pyrene* | ng/m ³ | USEPA 8270 C to -13A | 01(Annual) | <0.20 |

Remarks: (*)-Parameters are outsourced to other Lab.

****End of Report****

Rekha Saxena
Authorized Signatory
Rekha Saxena
B. Sc, M. Sc. (Botany)
Director
ELES Pvt. Ltd.

Page 1 of 1

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"Save Environment, Save Future"



Annexure 3

Date – 01.09.2022

Office Order

Environmental Cell has been re-constituted at Serengdag Bauxite Mine (Area 140.07 ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Hindalco Industries Limited.

1. Mr. Akhilesh Sinha (Coordinator)
2. Mr. Rajarshi Majumdar (Member)
3. Ms. Abhilasha Singh– Environment Engineer
4. Mr. Abhay Kumar – Environment Engineer

The Undersigned is the in charge of above Environment Management Cell constituted for the purpose of ensuring compliances of environmental act rule and regulation for the above mine.

A handwritten signature in blue ink, appearing to read "Basudev", with a horizontal line underneath.

Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)


Annexure 4

| Production, Mined Out, Back Filled and Over Burden removal from April'22 to September'22 | | | | | | | | |
|--|----------------------------|------------------------|---------------------------|--------------------------------|-----------------|---------------------|-----------------------|--------------------|
| S No | Name of the Mines | Mining lease area (ha) | Production Capacity (MT)* | Lease Period* | Production (MT) | Mined out area (ha) | Back filled area (ha) | Over burden (Cu.M) |
| 1 | Bagru bauxite Mine | 75.41 | 85000 | 22.01.1974 to 31.03.2030 | NIL | NIL | NIL | NIL |
| 2 | Bhusar Bauxite Mine | 65.31 | 280000 | 11.07.1981 to 31.03.2030 | 116176 | 0.78 | 0.34 | 82296.15 |
| 3 | Hisri (New) Bauxite Mine | 14.55 | 100000 | 19.07.1981 to 31.03.2030 | 63046 | 0.34 | 0.23 | 47769.44 |
| 4 | Kujam - I Bauxite Mine | 80.87 | 150000 | 13.03.2006 to 12.03.2056 | 53620 | 1.74 | 1.18 | 39931.13 |
| 5 | Kujam - II Bauxite Mine | 157.38 | 300000 | 24.03.2006 to 23.03.2056 | 147610 | 4.79 | 2.56 | 181309.80 |
| 6 | Amtipani Bauxite Mine | 190.95 | 150000 | 13.03.2006 to 12.03.2056 | 96500 | 2.12 | 2.050 | 126569.80 |
| 7 | Gurdari Bauxite Mine | 584.19 | 325000 | 23.03.1985 to 22.03.2035 | 114070 | 3.65 | 2.68 | 292766.10 |
| 8 | Shrengdag A Bauxite Mine | 155.81 | 260000 | 16.10.1974 to 31.03.2030 | 53600 | 1.2 | 0.9 | 40876.3 |
| 9 | Shrengdag B Bauxite Mine | 140.07 | 100000 | 04.10.1978 to 31.03.2030 | 45750 | 0.8157 | 0.6184 | 44264.72 |
| 10 | Jalim & Sanai Bauxite Mine | 12.14 | 50000 | 16.10.1974 to 31.03.2030 | 25000 | 0.2413 | 0.2 | 8656.24 |
| 11 | Orsapat Bauxite Mine | 196.36 | 200000 | 17.07.1986 | NIL | NIL | NIL | NIL |

Annexure 4

| | | | | | | | | |
|--|--|---------|--------|--------------------------------|--------|------|------|-----------|
| | | | | to 16.07.2036 | | | | |
| 12 | Chiro Kukud bauxite Mine | 152.57 | 100000 | 29.01.1985 to 28.01.2035 | NIL | NIL | NIL | NIL |
| 13 | Pakhar (8.09) | 8.09 | 80000 | 16.05.1973 to 31.03.2030 | NIL | NIL | NIL | NIL |
| 14 | Pakhar (35.12) | 35.12 | 200000 | 17.04.1975 to 31.03.2030 | NIL | NIL | NIL | NIL |
| 15 | Pakhar (115.13) | 115.13 | 300000 | 19.07.1996 to 31.03.2030 | 87500 | 1.52 | 0.57 | 242684.08 |
| Minerals & Minerals Limited | | | | | | | | |
| 16 | Pakhar (15.58) | 15.58 | 60000 | 28.04.1965 to 31.03.2030 | NIL | NIL | NIL | NIL |
| 17 | Pakhar (109.507) | 109.507 | 280000 | 26.07.2008 to 25.07.2058 | 129700 | 0.29 | 0.00 | 26032.12 |
| 18 | Bimarla Bauxite Mine | 134.526 | 300000 | 18.07.2009 to 17.07.2059 | 54050 | 1.34 | 0.60 | 118183.21 |
| 19 | Amtipani Chirodih Bauxite Mine (130.01 ha) | 130.01 | 450000 | 11.01.2017 to 10.01.2067 | NIL | NIL | NIL | NIL |

*Static information about the mines included in the above table


 for
Basudev Gangopadhyay
 AVP (Planning, Environment & Compliance)

Annexure-5

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2022-23

The composite cost during the year 2022-23 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115.13 ha), Pakhar (15.58 ha), Pakhar (109.507 ha), Pakhar (8.09 ha), Pakhar (35.12 ha), Serengdag (140.06 ha), Serengdag (155.81 ha), Jalim & Sanai (12.14 ha), Gurdari (584.19 ha), Amtipani (190.95 ha), Kujam I (80.97 ha) Kujam II (157.38 ha), Bagru (75.41 ha), Hisri New (14.55 ha), Chiro kukud (152.57 ha), Orsa pat (196.36 ha), Bhusar (65.31 ha), Bimarla Bauxite Mines (134.52 ha) and Amtipani Chirodih (130.01 ha) Bauxite Mine.

| S No | Description | Budget (in Rupees) FY 2022-23 | Actual (in Rupees) FY 2022-23 (From April'22 to September'22) |
|------|---|----------------------------------|---|
| 1 | Pollution Control & Environment monitoring | 49,75,923.00 | 33,83,623.92 |
| 2 | Reclamation/ Back filing & Rehabilitation** | 5,83,65,000.00 | 5,07,53,126.66 |
| 3 | Green belt, Plantation & Water sprinkling arrangement | 48,76,825.00 | 45,85,322.59 |
| 4 | Rural Development | 3,10,21,250.00 | 2,39,91,751.19 |

**Part of OB removed cost.

for
Basudev Gangopadhyay
AVP (Planning, Environment & Compliance)